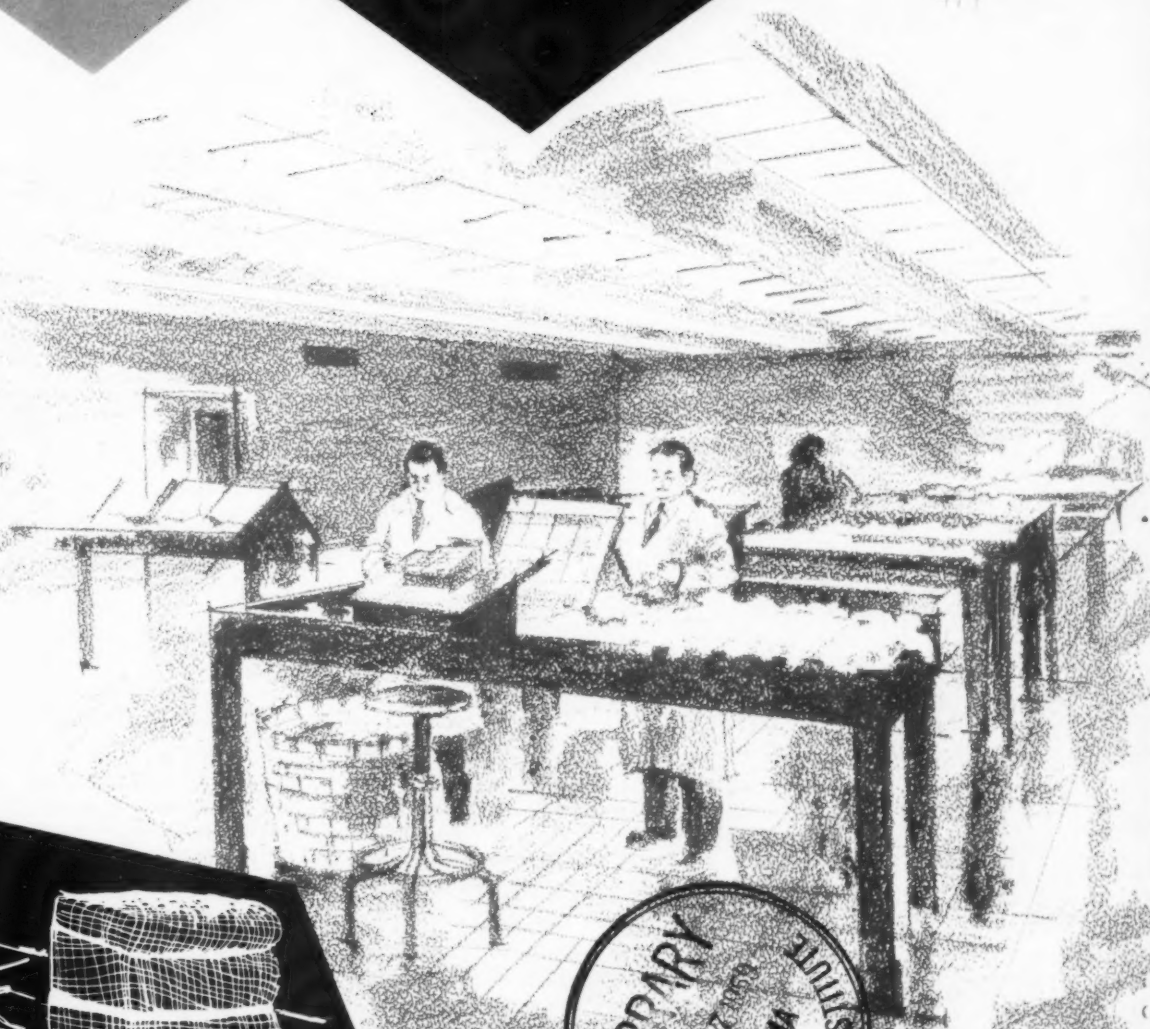


agricultural marketing

APRIL 1959

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Classification of Cotton
Livestock Terminal Markets
Chilled Orange Juice Industry

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CHILLED JUICE

*growing outlet for
Florida Citrus*



by Roy L. Lassiter, Jr., and George L. Capel

FROZEN fruit juice concentrates, the post-war baby that grew into the biggest member of the Florida citrus industry, has a younger brother which is showing a lot of promise.

The youngster is chilled citrus juice, and especially orange juice.

Chilled citrus juices have been available for many years at fruit stands. But, until recently, they were never really popular items.

Then, improved technology brought a more uniform product to market and dairies began to distribute it along with their regular line of dairy goods, and the chilled citrus juice industry began to boom. Both production and consumption skyrocketed.

Last year (1957-58) nine Florida chilled citrus juice firms turned out 40.5 million gallons of juice with a market value of \$38,350,000. They used nearly 7 million boxes of fresh oranges, 200,000 boxes of grapefruit, and 3,350,000 gallons of reconstituted frozen concentrate.

Dairies have continued to be the biggest outlet for chilled citrus juices. Some production is, however, handled by special distributors, grocery chains, vending machine operators, wholesale grocers, and institutional customers.

Much of the juice is sold to city

dwellers in the North Atlantic States. Canadians in the eastern part of the country also have turned out to be good customers.

But there's still a vast untapped market for chilled citrus juices, both here and in Canada. The industry has plenty of room for expansion, and many new firms are constantly entering the business. Of the 9 Florida processors surveyed by AMS, only 3 firms had been in business over 5 years. Comparative newcomers to the industry, these firms are now among the top producers in the State.

But growth brings with it problems, and producers of chilled citrus juices in Florida have had their share.

Chief among their marketing problems has been that of quality maintenance. Temperature control for the juice—as it makes its way from the processors to the final consumer—is a particularly big headache. Chilled citrus juice must be kept at lower temperatures than the dairy products with which it is usually sold. This means special handling, storage, and display facilities. Repeated temperature and quality checks must be made as the product passes along the way to market.

Another problem of the industry is in keeping the quality of the product at a set standard despite variations in

the quality of the fresh fruit. High quality frozen concentrates or frozen single-strength juices are generally used for this purpose.

To maintain this uniform, fresh quality, chilled juice must be moved quickly to market. Distributors must know the exact needs of the market at all times and be able to deliver goods on short notice.

A third and equally serious problem facing the chilled citrus industry is in its packaging methods. The fiberboard, dairy-type containers in which two-thirds of the output is packaged do not stand up well under the rigors of long-distance shipping. This, of course, increases transport loss and spoilage, and affects the flavor and aroma of the product.

The final problem for the industry is, naturally, the consumer—getting him to buy the product. The record so far is good. People like the taste of chilled juice and its convenience. The major things they dislike are its cost and quality.

An important reason why many people don't buy chilled juices is simply that they are not familiar with these products. Increased advertising and a single trademark for Florida juice could help identify the product for the public and build sales.

Problems, or not, the chilled citrus juice industry is even now a major user of Florida citrus fruits.

The authors are agricultural economists in the Marketing Research Division of AMS.



mothers discuss COTTON and WOOL and OTHER FIBERS in Children's Clothes

NOBODY knows better than Mom what the kids will and won't wear. And nobody knows better than she how well these clothes stand up under repeated washings.

So, to get the real low-down on which fibers are preferred for children's clothing, Agricultural Marketing Service researchers went straight to Mom. What she had to say is important to cotton and wool growers, textile manufacturers, and the clothing industry in general.

Part of a broad program aimed at expanding the market for farm products, this particular research study shows what is wanted and expected in the fibers used for children's clothing.

Girls' blouses and boys' shirts, for example, are generally preferred in cotton. About three-fourths of the mothers interviewed said this material suited them best.

The reasons most frequently given for choosing cotton were because it "looks fresh and nice after use," is "easy to iron, easy to launder and care for," and "lasts a long time."

Cotton was also the preferred fiber for girls' school skirts and boys' school pants. Wool was the second choice for girls' school skirts.

Laundering ease was the reason given most often by the mothers who

preferred cotton pants and skirts. The popularity of wool skirts for school girls was due to the warmth of the material, but style and appearance were also considered important.

When mothers were asked their opinion of fibers in girls' dress-up dresses, they rated cotton and nylon at the top of their lists. However, a variety of other fibers or mixtures was preferred by about one-fourth of the women.

Both cotton and nylon were considered attractive for "Sunday" dresses. Nylon was praised because it is easy to launder and requires little or no ironing. Cotton won favor because it washes easily and well, and is durable.

Cotton and nylon were again the favorites for girls' slips. Six out of 10 women preferred cotton; 3 in 10 chose nylon.

For children's outer jackets and short coats, about a third of the mothers preferred wool. Another fifth said they liked cotton best. And there were many other scattered votes cast for wool combinations, nylon, leather or suede.

Those who specifically listed wool or cotton as their choice in jacket fibers said they liked the way it looked and the way it wore. The chief virtue of wool was its warmth; washability and ease of laundering were big points in cotton's favor.

All of these items—skirts, pants, shirts, blouses, dresses, and outer coats—were worn by nearly all the children of the mothers interviewed. This was not true for raincoats. Not many children had or wore rain apparel.

"No need for them," many mothers said, and went on to explain that door-to-door transportation eliminates the need for rain apparel.

Only about 1 in 4 mothers felt they couldn't afford raincoats. Some, however, said their school-age children (especially the boys) rebelled at wearing them.

Almost two-fifths of the mothers whose boys wore raincoats preferred rubber-coated cotton for this garment. Oilskin was liked best by 1 in 5, and plastic and treated cotton were also mentioned frequently.

For girls, treated and rubber-coated cotton and plastic were listed equally often as "best liked" materials.

Rubber-coated cotton and oilskin were liked because they were durable and effectively kept the kids dry. Treated cotton was considered durable, attractive, and "suitable for many occasions." Plastic raincoats appealed to some mothers because of their waterproof quality, lower price, light weight, easy cleaning, and convenience.

Also included in the AMS survey were questions about wash-and-wear clothes for children. It was found that girls' dresses and blouses and boys' shirts were the items most frequently used in wash-and-wear fabrics. Skirts and slacks also had been tried by quite a few mothers.

About three-fourths of the women had had experience with wash-and-wear garments. They praised the easy care features of this type of clothing. The 4 out of 10, however, who had some criticism mentioned most often that some ironing was required.

In another question concerning woolen garments, about half of the mothers interviewed said they had washed some children's woolen clothing in the past year. Only 1 in 5 didn't like the way wool washed.

This article is based on Margaret Weidenhamer's research report AMS-294. Miss Weidenhamer is a project director in the Marketing Research Division of AMS.

SURPLUS FOODS

AID DISASTER VICTIMS



Thirty-four thousand pounds of food donated from U.S. Department of Agriculture surplus stocks helped feed victims of the recent flood disaster in Ohio.

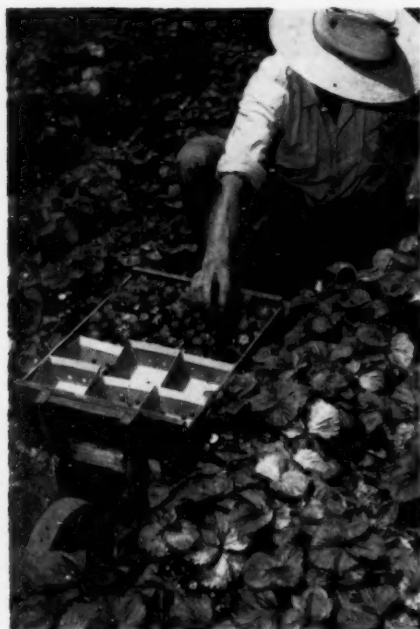
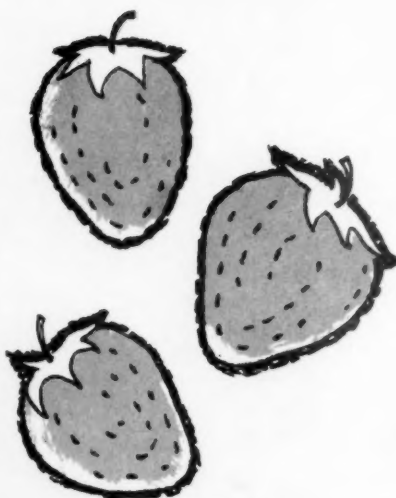
Part of the AMS direct distribution program, food donations to needy per-

sons were moved through the Office of Commodity Distribution of the Ohio State Department of Public Welfare to the Red Cross. Members of AFL-CIO unions helped with the actual distribution.

Scenes such as these were reenacted

many times throughout the flood-stricken areas of Franklin County. Photos at top and lower left show victims receiving food. At lower right, volunteers from auto workers' union help load bags of flour out of a Columbus warehouse.

JUNE PLANTINGS are possible with poly-wrapped STRAWBERRY PLANTS



POLYETHYLENE liners for stored strawberry plants may change the planting pattern of some East Coast growers. Packed in poly-lined crates and held at 30° F., strawberry plants can now be successfully stored from 8 to 10 months.

This additional storage period allows the grower a chance to fit strawberry plantings more easily into his production scheme. It reduces the cost of weed control because of the

shorter time the plants are in the field. And it distributes the work load so that strawberry planting comes after the early spring rush.

Best of all, poly-packed strawberry plants set in June produce abundant crops of big, lush berries.

The use of polyethylene liners for storing dormant strawberry plants was developed in 1955 by John T. Worthington of the Agricultural Marketing Service and D. H. Scott of the

Agricultural Research Service. (See *Agricultural Marketing*, July 1957.)

Within a year, many East Coast nurserymen had adopted this storage method.

Poly-liners provide nurserymen with a less costly and more effective means of storing strawberry plants than the regularly-used sphagnum moss. Plants packed in polyethylene-lined crates come out of storage with green turgid leaves and bright succulent roots. Their field survival is high, and so is their yield.

June-set, cold storage Pocahontas plants produced more than 13,000 quarts per acre in 2 test plantings in 1956, and did almost as well in 1957.

Yields from 7 of the 8 varieties set out in June 1957 ranged from 9,948 to 13,098 quarts per acre in the spring of 1958. Much of this fruit measured 1 to 1¼ inches in diameter.

In the first four pickings of the Armore variety, 80 percent of the berries had a diameter of 1 inch or more. Fifty-five to 69 percent of the other six varieties were also of this size.

Tests with August plantings, however, did not produce as good yields of high quality berries the following spring. Also, the later in August that the plantings were made, the poorer the yields.

A grower's success with June plantings, however, will depend upon the choice of varieties, region of the country, quality of the cold-storage planting stock, and the way in which he cares for his plants.

Obtaining cold-storage plants that are fresh-looking, free of decay, and of good crown size is particularly important. Grading plants prior to planting, especially if they are to be set by machine, will eliminate setting plants with damaged crowns or other defects and thus noticeably improve the stand. Planting should immediately follow removal from storage.

Irrigation will be needed at time of planting and occasionally thereafter.

It probably would be wise for a grower to experiment with a small planting the first year.

THE HORTISPECT

An Instrument To Measure Fruit Maturity



Chief advantage of the Hortispect is that it can check the maturity of fruit without damaging the sample. Here, a tomato is being examined.

THE HORTISPECT, an intriguing mechanical prodigy of the Agricultural Marketing Service, sees all and knows all about the maturity of fruit. Its insight—and that's exactly what it is because it peeks inside the whole fruit—it gained by measuring the light transmitted through the sample.

Designed by Gerald S. Birth and Karl H. Norris of the Marketing Research Division, the instrument was developed as part of an AMS program aimed at finding more objective means of measuring the quality of fresh fruits and vegetables as a path toward market expansion.

In practice, the Hortispect indicates the color of light which is most easily transmitted through a fruit. For example, green light will go through green fruit better than any other color; yellow light goes through yellow fruit most easily; and red light through red fruit.

Because it is more exact to identify a particular kind of light by its wavelength than its color, the designers of the Hortispect record the index of maturity in terms of the wavelength of peak transmittance. Transmitted light is used instead of reflected light because the color of the flesh is a better index of maturity than skin color.

Fruit of almost any size can be checked with the Hortispect in a few seconds. The examination process is not at all complicated.

The whole fruit is placed over the light source of the instrument. A light-tight seal is made at the base of the fruit and an integrating sphere lowered so the fruit is completely enclosed. At the press of a switch, the scanning process starts, and different wavelengths of light are transmitted through the fruit. When the maximum wavelength is reached, the switch is released.

The reading on the wavelength dial at this time is the index of maturity.

The light source for the Hortispect is a 6-volt, 100-watt ribbon filament lamp. This filament provides a narrow beam of energy which is focused upon the test sample through standard microscope lenses.

The "heart" of the Hortispect is a small piece of glass about $\frac{3}{4}$ by 3 by $\frac{1}{8}$ inches thick, known as a wedge interference filter. When the filter is held up to the light, all the colors in the spectrum can be seen. In the Hortispect, this filter is moved through the light beam so the sample is illuminated first with blue light, then green, and so on. When the

phototube, which measures the light transmitted through the fruit, shows a maximum, the position of the filter at that moment indicates the wavelength of peak transmittance.

Movement of the filter in the Hortispect is controlled by two switches. A meter shows the level of light transmitted through the sample and provides a convenient check on the instrument's operation.

For both the marketing man and the scientific researcher, the Hortispect shows promise of meeting all the major needs for a good maturity index. It is adaptable to a wide range of kinds and sizes of fruit, makes rapid measurements, is simple to operate, portable, and it does not damage the sample.

At present, a commercial model of the Hortispect is being developed, and this will be used in further tests on a wide range of fruits grown during several seasons. When it is perfected, the Hortispect should be a great help to growers, processors, Federal and State inspectors, and everyone else involved in marketing fresh fruits.

classification

COTTON



Warehouseman puts cotton sample in sack for mailing to USDA Cotton Classing Office.

It's again time for growers to get ready for the classification market under the Smith-Doxey Act.

According to USDA regulations under the Act, applications must be filed by June 1. Any group of growers "owning or controlling" cotton may apply.

Last year, more than 10 million bales (the 1958 crop) were classified, and the largest proportion classified in any year since 1938.

Sampling and classing under the Act is accepted. Cotton producers accept the accuracy of the Service's "Service" helps to eliminate experience every time a bale of cotton is baled in much bond.

In addition to its sale, the Act provides producers a free market reports showing prices being marketed are set by individual members of the group.

This information regarding cotton farmer quality which cotton best suited for use in the market can be used to determine the of cotton that will result in the net.

All this cuts market charges for sell cotton, but those who it as



Cotton classing under Smith-Doxey Act begins in the warehouse where newly ginned bale is sliced open to get sample.



Two samples are removed from the bale—one from each side. In this way, classing office can get better indication of quality of cotton in bale.

The Smith-Doxey Act...

on of COTTON

or growers to think about filing their applications
on market news services provided under the Smith-

DAgricultural Marketing Service, which administers
ons be filed as soon as the 1959 cotton crop is
p offers "organized to promote the improvement of

that million bales of cotton (about 93 percent of
ere d under the Smith-Doxey Act. This is the
classon any crop since the service became available

lassin under the Smith-Doxey Act is generally ac-
roducinners, and buyers have come to depend upon
e Smoxey "green card." As such, this classification
mining expense of additional sampling and classifica-
baleton changes hands; it also helps to keep the
ch bondition.

ts say and classification services, the Smith-Doxey
ucersa free-of-charge market news service. Weekly
owinprices of various qualities of cotton currently
re sgroup representatives, sampling agents, and
rs of improvement groups.

n rear beyond the marketing process. It gives the
lity which can aid him in selecting the varieties of
for p in his particular area. The program can even
ine the of cultural practices and harvesting methods
the net return to the grower.

arketarges and aids not only those who grow and
ose wit as well.



At the USDA Cotton Classing Office (this one's in Memphis, Tenn.), clerk removes cotton samples from mailing sack. Classification will be handled by "classer" at right.



Here the cotton sample is compared with guide box to determine its grade. Clerk then records this classification on Smith-Doxey card, which is then returned to producer.



The Smith-Doxey card is inserted by the warehouseman between the bales of cotton before they are placed in the mailing sack.



Livestock Terminal Markets in U. S.

by Edward Uvacek
and Dalton L. Wilson

WHEN American railroads spread into the heart of our country in the 1800's, they pulled the Nation's livestock markets right along with them. As the rail centers of the land grew into continental crossroads, the public livestock terminals became the national meat markets.

Railroads reached out across the farmland and prairies to round up cattle, hogs, and sheep for stockyards in Chicago, Kansas City, and St. Louis. Trainloads of animals were hauled to Cincinnati, Indianapolis, and Omaha; to Denver, St. Paul, Fort Worth, Sioux City, and St. Joseph.

These were the first livestock centers and, by and large, they are still the big terminal markets.

A study made by the Agricultural Marketing Service shows that despite

Mr. Uvacek is an agricultural economist in the Market Organization and Costs Branch, Marketing Research Division, AMS. At the time of this research study, Mr. Wilson was also a staff member of that organization.

the recent growth of local auction markets, terminals still handle a large share of the livestock marketed by producers. Terminal markets in 1957 provided bed, board, and selling services to 23 million cattle, 5 million calves, 32 million hogs, and 13 million sheep and lambs.

Terminals are the dominant outlet in the North Central region, handling something less than one-half of the livestock sold in the area. About one-third of the animals going to market in the West are herded through the terminals.

In all parts of the country, more cattle than any other species is moved through terminals. Hogs, however, are a large part of the terminal traffic in the South, Northeast, and North Central regions. Lamb marketings are more important in the Mountain and Pacific regions than in other parts of the country, while calves are relatively more important in the Northeast and South Central regions.

What the terminal markets offer in

the way of services is basically simple—room and board for the animals and a market place for the buyer and seller. The extent of these services and the charges made for them depend upon the manner in which the animals are handled.

At the terminal market, livestock are listed either as "initials" or "salables," "directs," or "throughs." These categories describe the type of receipt, but they also affect the marketing charge. "Initials" are animals offered for sale at the terminal for the first time. "Directs" are livestock moving directly to a buyer, usually located at or near the stockyard. And "throughs" are animals that are on their way to a distant buyer. They may be unloaded for feed, water, and rest, or taken care of in the cars.

Livestock initially sold are usually handled by commission agents who represent the producer at the yard. Frequently, the purchaser is a livestock dealer who resells them at the same terminal.

Service or facility charges are made by each of those involved in the marketing process. Stockyard companies charge for feed, bedding, the use of the yard, and other services. Commission agents charge for selling the animals. And, livestock dealers (when they enter the picture) sometimes obtain a return from the buying and selling of the animals. While the latter is not a direct charge, it nonetheless becomes a part of the total bill for moving livestock through the terminal.

According to the latest available research data, overall marketing charges per head at the terminals average \$2.74 for cattle, \$1.61 for calves, 88 cents for hogs, and 58 cents for lambs.

Season, source of supply, and the way the animal is sold, all affect the cost of marketing livestock through terminal markets.

Here are some typical examples of what it might cost to market several shipments of livestock. Actual costs would, of course, not be the same be-

cause of the many variables involved.

The first shipment is an "initial" sale of slaughter steers. It went to a local terminal market in Texas in August 1958. At the terminal the animals were fed, brand inspected, and consigned to a commission agent. The next day the steers were sold to a local packer. The producer paid \$2.48 a head to the commission agent, of which the yard got \$1.39. Initial yardage was 98 cents per head, and the brand inspection cost 15 cents. The total feed cost came to 38 cents, about 12 cents of which was paid by the buyer.

A carload of market hogs in Illinois is used to illustrate the charges for a "direct" shipment. The hogs were shipped in October 1958 direct to a packer located at the stockyard. They had already been purchased in the country. The only extra service performed at the yard was spraying. Market charges for the hogs were 21 cents a head, with 20 cents for yardage and 1 cent for spraying. The packer paid the total charge.

A third example shows the marketing cost of a truckload of feeder lambs delivered to a Mountain region terminal in October 1958. The lambs had to be dipped before being sold. They were sold by a commission agent at the yard to a livestock dealer who then resold them to a local feedlot operator. In this transaction, the producer paid 33 cents a head for yardage and dipping and 10 cents in commission charges. The dealer paid 5 cents for resale yardage and 12 cents for feed, and kept 28 cents for his part in the buying and selling operations. Thus, the total cost of marketing the lambs at the terminal came to 88 cents a head.

A more complete report on livestock marketing charges at terminal markets may be found in Marketing Research Report No. 299, "Livestock Terminal Markets in the United States." Issued last February by the Agricultural Marketing Service, the research report may be obtained from the Office of Information, U.S. Department of Agriculture.

Humane Handling and Slaughtering of Livestock

In accordance with the Humane Slaughter Law of 1958, the U.S. Department of Agriculture last month announced three approved methods for the humane handling and slaughtering of livestock.

The methods are: *chemical*, use of carbon dioxide gas for sheep and swine; *mechanical*, the use of captive bolt stunners or gunshot on sheep, swine, goats, calves, cattle, horses, and mules; and *electrical*, the stunning of swine, sheep, calves, and cattle with electric current.

Carbon dioxide gas and electric current must be administered in such a way that they produce surgical anesthesia in the animals quickly and calmly. The captive bolt stunners and firearms must produce immediate and complete unconsciousness with a minimum of excitement and discomfort.

Preslaughter handling also must be free from hazards that might accidentally cause pain to the animals.

These designations, based on detailed studies conducted by the Agricultural Research Service of USDA, were made with the help of a 12-member advisory committee appointed by Secretary of Agriculture Ezra Taft Benson.

Packers who wish to sell meat products to Federal agencies any time after July 1, 1960, must follow these regulations for the humane handling and slaughtering of livestock. Slaughtering in accordance with the ritual requirements of any religious faith is exempt from the terms of the Act.

Although Federal regulation of slaughtering practices is new to the law books, humane handling of food animals has long been of concern to USDA. Both the Packers and Stockyards Act and the 28-hour law include provisions for the humane treatment of livestock. Also, many packers and slaughterers have, on their own, adopted improved methods of humane slaughter.

Price Spreads for Beef and Pork at New High

Farm-retail price spreads for U. S. Choice grade beef and for pork reached new highs in 1958. Spreads between the prices farmers get for cattle and retail prices for beef were about 12 percent greater in 1958 than in 1957, the biggest year-to-year increase since 1947 and 1948. Pork margins rose about 3 percent to set a new record.

The retailer's gross margin of the farm-retail spread accounted for all of the increase for beef and nearly all the rise for pork. Reduced supplies of slaughter livestock and higher marketing costs were responsible for the higher prices and higher farm-retail spreads for meat.

The cost of marketing beef after the product left the farmers' hands increased from an annual average of 27.6 cents a pound in 1957 to 31 cents in 1958. This was twice the percentage increase from 1956 to 1957. The farmers' share of the consumer dollar spent for beef increased from 61 cents in 1957 to 62 cents in 1958.

In setting a new high in 1958, the spread between farm and retail prices for pork rose from 27 cents a pound to 27.7 cents. Each year since 1953 (except for 1956), the marketing margin for pork has widened. The farmers' share of the consumer dollar spent for pork increased from 55 cents in 1957 to 57 cents in 1958.

BLACKSTRAP MOLASSES

FOR ANIMAL FEED

Moisture content and amount of carbohydrate are most important quality factors in molasses

BLACKSTRAP MOLASSES has, in recent years, been a sticky problem to those who produce, market, and use it for manufacture of animal feed. There is considerable variation in its price and quality, with no direct relationship between the two.

In fact, a study by the Agricultural Marketing Service shows that transportation costs are the real determining factor in molasses prices. If the molasses comes from a distant point, the price is high—regardless of whether the molasses itself is of high or low quality.

For example, a ton of molasses containing 51.5 percent total sugar and 27 percent moisture recently sold for \$9 more a ton than molasses containing 61.6 percent sugar and 18.9 percent water.

The reason—one batch of molasses had moved a greater distance to market than the other.

Without definite grades or other labeled identification, it's impossible to know what quality molasses is being purchased.

The composition of blackstrap molasses varies considerably even among producing areas and among raw sugar mills within an area. Different handling and marketing practices add to this variability.

AMS researchers found that the

moisture content in slightly more than 200 samples ranged from 18 to 31 percent. Specific gravity varied between 75 and 90 degrees Brix, ash content from 6 to 13 percent, and total sugar from 44 to 66 percent.

The amount of carbohydrate in molasses (expressed in total sugar) and the moisture content are the two most important factors determining quality. Carbohydrate is important as energy-giving material in animal feeds; moisture affects the keeping quality of the feed.

Thus, it is absolutely necessary for feed manufacturers and livestock producers to know the composition of the molasses they are using either in mixed feed or in liquid form.

Standards or grades based on the nutrients present in a molasses sample would help considerably. They would move a more uniform product through marketing channels and afford a more realistic basis for the buying and selling of molasses.

For at least 50 years, the quality of feeding molasses has been based upon its degrees Brix. This unit measures the specific gravity of a solution and indicates the percentage

of sucrose present. However, in recent years, this method has not always proven accurate. The use of fertilizers and irrigation has increased the inorganic salts in molasses, and the degree-Brix reading has increased without a corresponding increase in sugar content.

As a replacement for this older, and no longer reliable, method of quality measurement, AMS recommends several other guides or possible grades. It suggests that:

- Superior Blackstrap Molasses contain 23.4 percent or less water and 53.5 percent or more total sugar.

- Blackstrap Molasses—23.5 to 26.4 percent water and 48.5 to 53.4 percent total sugar.

- Utility Blackstrap—26.5 percent or more water and 42.5 to 48.4 percent total sugar.

It is also recommended that products containing less than 42.5 percent sugar and 26.5 percent or more water be classed as a mixture and identified as to source, moisture, and sugar content.

Whether or not these standards are accepted—either for labeling purposes or as established grades—is up to the industry. The final decision, of course, will rest with the sellers and buyers of molasses as well as the appropriate regulatory agencies.

A full report of the AMS research study on blackstrap molasses appears in MRR-302, which is available upon request from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

PROPOSED STANDARDS FOR CHILLED ORANGE JUICE

In response to requests from industry, the U. S. Department of Agriculture has drawn up tentative grade standards for chilled orange juice. These have been submitted to growers, processors, and consumers for comments. Any suggestions these people might have will be fully considered before the standards are issued in final form.

The proposal covers five general types of chilled orange juice based on the method of preparation. Sweeteners are permitted in all types except Type I, which includes only freshly pressed juice.

Each type is divided into grades A and B above substandard.

This article is based on a study conducted by L. R. Richardson, professor of biochemistry and nutrition at Texas A. and M. College, under the supervision of C. B. Gilliland, AMS.

EFFECTS OF INCOME AND FAMILY SIZE ON

FOOD CONSUMPTION



by George R. Rockwell, Jr.

MOST of us eat more when we have a little extra cash than we do when we are clinging to a bed-rock budget.

But, in addition to income, the size of family and where we live also have a lot to do with what and how much we eat.

Marketing specialists of the Agricultural Marketing Service recently took a long, analytical look at figures gathered in 1955 from a survey of household food consumption patterns. They wanted to see what effect income and size of family have on eating habits.

This research showed that upper income families eat more of many foods than their poorer neighbors. But, the greater the income, the smaller the proportion of salary spent on food.

The big change that comes with more money is in the quality of food. There's more steak on the dinner table and less hamburger; a rib roast instead of chuck.

But lower income families spend for food a larger share of the increase in money income than upper income families. For example, a low-income city family with 10 percent more income than another family spends a fourth of this difference for more

food. But at the top of the income scale, only 15 percent of a 10 percent differential in income is spent on more food purchases.

The study of food consumption habits also gives us an idea of the difference between the amount of money farm families spend on food and the amount spent by their city cousins.

Farm families, of course, eat better than city families even though low, middle, and high money income levels for farm groups are considerably lower than similar brackets in the city. But, even though the overall farm income level is lower than the city, the value of food consumed on farms does not vary as much with increases in income level as it does among low-income city families.

Among medium-income farm families the value of food consumed varies almost as much with income as it does among medium income city families. At the upper income level, there appears to be no difference between farm and city families in how food consumption varies with income.

There were, however, some notable differences between farm and non-farm families in the amounts and kinds of food eaten in spring of 1955. Farm families consumed more per capita of milk and milk products, fats and oils, flour, and sugar and sweets than city families. At the same time, they ate less canned and frozen fruits and vegetables. This was true no

matter what the income level.

Shopping lists of city housewives in upper income families are somewhat different from those of city housewives in lower income groups. They buy more fresh and frozen fruits and vegetables. They buy more meat, poultry, and fish. And, if they purchase less flour and cereals, they buy more baked goods.

For both farm and city families, expenditures and consumption of milk and dairy products are only slightly related to income. Although higher incomes do mean more cream, ice cream, and cheese in the refrigerator, income has little effect on milk purchases. The number of children in a household seems to be the deciding factor here.

The size of the family also has an effect on the amount of other food used. As every breadwinner knows, bigger families eat more than small ones. But, interestingly enough, the big family uses less food per person than the small one.

The main reason for large families requiring less food per person is that a crowded dinner table becomes a more efficient consumption line than a sparsely populated one. The mother of many can get more mileage out of the food she buys than the housewife cooking for only two or three.

Yes, it's true. We all eat. But what and how much depends upon where we live, how big our families are, and the size of the family budget.

The author is a staff member of the Agricultural Economics Division of AMS. At the time of this research, he was with the Marketing Research Division.



POLICIES and PRACTICES in institutional wholesaling

by Patrick J. Cassidy
and Paul Wischkaemper

ALREADY in a state of tremendous flux, the institutional grocery wholesaling industry is continuing to expand its services to restaurants, cafeterias, hospitals, hotels, schools, summer camps, and other food service outlets.

Through promotional aids, menu planning, and more direct sales relations, these wholesalers are helping food service operators effectively use the products they sell. In this way, they are strengthening their own competitive position and, at the same time, bringing about a broader and more efficient distribution of farm-produced food.

Institutional wholesaling is fast becoming an important segment of the food distribution industry. Today, approximately 25 percent of the con-

sumer's food dollar is spent for food away from home.

Obtaining this food in carload and truckload shipments from numerous packers, manufacturers, and other suppliers is the job of the institutional grocery wholesaler, who then stores, sells, and delivers it to food service institutions.

This operation requires a vast amount of handling and rehandling, coordinating of wholesaling and food service functions, and a lot of record keeping.

To define the operating policies and practices of institutional wholesalers and to find out what services they offer to customers, the Agricultural Marketing Service recently studied several successful distributing firms.

Warehouses operated by these wholesalers ranged in size from 14,000 to 500,000 square feet. They varied from old multistory buildings in congested downtown locations to modern one-floor structures in suburban areas.

The operation of each of these warehouses was adapted to meet the needs of the customers serviced by the wholesaler. The policies and practices he followed were, in his opinion, the best suited for his particular situation. They were, however, many and varied.

For instance, some wholesalers owned and operated their own delivery fleet, while others leased delivery equipment.

Reordering Merchandise

There also were two basic methods used to determine when to reorder merchandise. Wholesalers either followed a policy of review and judgment or used automatic reorder signals.

With the review and judgment method, the wholesale buyer decides whether or not to reorder each time

he checks his stock. Although this requires constant appraisal and reappraisal of the merchandise on hand, it provides more flexible handling of items affected by seasonal or other changes in sales movement. Manual office procedures are easily adapted to this method of inventory control.

Using automatic reorder levels, the buyer gets a signal to reorder when his stock reaches a predetermined level. This makes reordering a more or less automatic process, freeing the buyer from the chore of constant inventory review.

Size of Sales Department

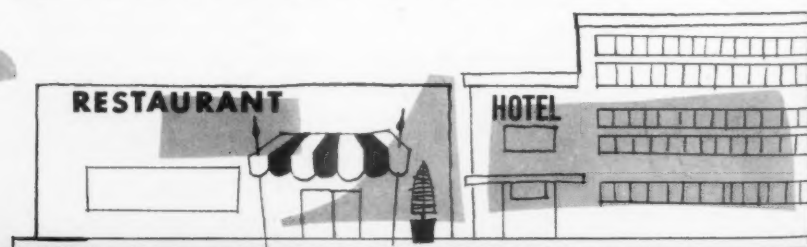
In the selling department, the organization of institutional wholesalers varies with the size of the firm—the larger the company, the more elaborate the sales setup.

All firms, however, had a person who functioned as a sales manager. Usually, though, these people had other duties besides coordinating the sales efforts of the company. They might also serve as division manager, general manager, or assistant to the general manager.

Whatever the executive direction, the big job of selling rests with the sales personnel, the men who go out and talk with the customers.

Selection and training of these salesmen differed considerably among the wholesalers. For the most part, larger firms had more extensive formal training programs than smaller wholesale companies. The length of training varied anywhere from less than 2 weeks to more than 6 months.

Salesmen were paid by one of three methods—commission on generated gross margin; commission on net sales; or salary, commission, and bonus. Each system was designed to meet a certain need and the particular system used by a wholesaler



seemed to indicate the objective he sought.

Wholesalers who used the gross margin system of payment wanted their men to push not only easy-to-sell items but all items in the line. They also discouraged the salesmen from granting price concessions.

Wholesalers who paid a commission on net sales felt this payment plan encouraged an increase in sales. When applied on a graduated scale, it gave the salesmen tangible incentive to boost the size of their orders. Since there is a limit in the number of contacts a salesman can make, this system encourages a careful selection of customers and sales of the complete line. When a variable commission rate was applied for certain categories of commodities, the wholesaler got added support for the items yielding the highest margins and requiring the greatest sales efforts.

The wholesaler who used the third basic sales compensation system—the salary, commission, and bonus—found that it, too, offered certain advantages. The salary gave his salesmen an element of security, while the commission gave them the incentive to expand sales; the bonus induced them to push high margin items.

Operators Resist Cash Terms

All of the wholesalers interviewed by AMS researchers believed that food service operators would resist cash terms. Some wholesalers also felt that any savings they might accrue as a result of cash terms probably would be offset by increased costs elsewhere.

Although most wholesalers had a policy regarding the size of orders that would be delivered, they made numerous exceptions to this rule. Generally, a food service operator could get delivery of whatever size

order he wanted.

A recent survey conducted by one firm revealed that orders of less than \$40 were served at a loss to the company. Yet this was \$5 more than the minimum order size established by company policy. The survey also disclosed that about 30 percent of the orders were for less than the \$35 minimum.

For this reason, many wholesalers are encouraging their salesmen to select only those customers who are willing and able to place sizable orders at regular intervals.

Other Changes Underway

To make the institutional wholesaling industry a more efficient and effective operation, many other similar changes are underway. One of the most controversial is the use of preprinted order forms or directories. Although generally not expected to replace salesmen, these forms offer the customer an opportunity to decide in advance upon some of his basic needs.

Salesmen will, however, continue to provide the real liaison between the wholesaler and the institutional food operator. The personal touch is still needed to demonstrate and sell new items, to distribute market information, and to provide the numerous services which individual customers demand.

In the future, these sales people are going to be offering their customers an even broader line of merchandise. Like the general grocery wholesaler, some institutional suppliers soon are expected to provide "one stop" service. Janitorial and paper supplies and frozen foods probably will be the first additions to their already established lines.

At the same time, other firms probably will become more specialized in

the outlets they serve, and some operations will be shifted to a cost-plus basis.

Of the 50 persons interviewed from the 9 cooperating firms, almost all expected to see a general broadening of wholesaling services to satisfy the growing needs and desires of customers.

Salesmen will again be the liaison people who will assist food operators in keeping abreast of all new products and new techniques. They will offer a wide range of new promotional devices to encourage expanded sales.

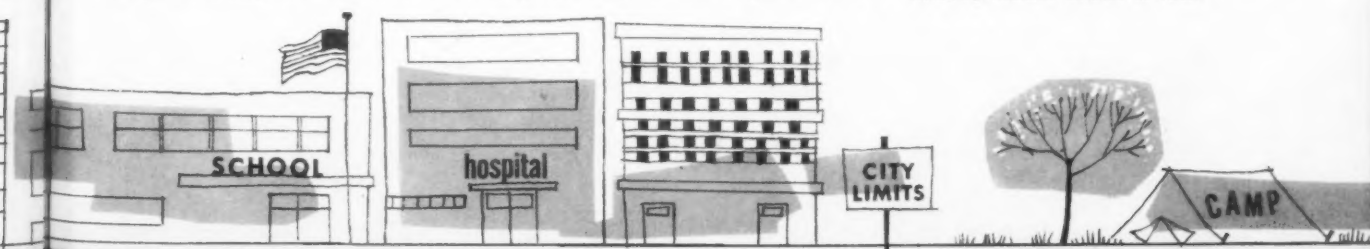
A recipe and menu service is already being employed by some enterprising wholesalers. Others are providing detailed label information to let the customer know exactly what the particular product is and how it can best be utilized. There is also extensive information available on portion costs and portion control.

All of these new merchandising services are expected to expand considerably in the next few years. So are some other management services.

Wholesalers foresee giving customers practical advice on equipment and layout, providing personnel replacement services, and supplying an accounting service. Each of these additional functions will increase the value of the wholesaler to the customer. At the same time, they will give the wholesaler a better understanding of the food service operation and in this way allow him to better serve each customer.

This, after all, is the objective of the food distribution industry. And, as this aim is accomplished, there are created additional demands for farm products. Farmers thus get a larger portion of the food dollar, and the customer also ends up getting more food for his money.

The authors are marketing specialists in the Marketing Research Division of AMS.



The Changing Market

Food Marketing Industries

Diversification—the branching out of firms into other operations—is not found in many of the food marketing industries. But, when it does occur, it accounts for a sizable part of the employment and payroll of the industry involved.

According to statistics of the Market Organization and Costs Branch of AMS, based on 1954 Census data, only 0.2 percent of all companies engaged in food marketing conduct other operations. But this small percentage employs 30 percent of the industry's workers and pays 38 percent of its wages and salaries.

Most of this diversification exists in processing companies rather than in firms that buy and sell farm products. It is most pronounced in meat-packing where less than 2 percent of the companies are engaged in more than one industry, yet these account for approximately 75 percent of industry employment and payrolls.

Multi-industry firms in the various trade operations represent less than 1 percent of this group's totals. Grocery store companies with allied enterprises, however, have employment rolls encompassing 43 percent of that industry's workers and 51 percent of its payroll.

Other multi-industry companies, such as wholesaling firms, assembling companies, eating and drinking places, and food stores other than groceries, account for less than 15 percent of

both employment and salaries.

For all the food marketing industries, about 77 percent of the multi-industry firms are engaged in 2 industries; 23 percent in 3 or more.

What this diversification means to the farmer and the consumer is not completely known. It is obvious, however, that when a company operates within the scope of several industries, its policies will be much more far-reaching than when its operations are confined to a single commodity or industry. Because of this, both buying and selling—both the farmer and the consumer—are affected.

Diversification thus plays a significant role in influencing the efficiency with which marketing operations are performed and the number of buyers in the markets in which farmers sell.

Farmers' Net Income

Farmers had 20 percent more net income in 1958 than in 1957 after payment of production expenses. Their realized net income last year came to \$13.1 billion—an increase of \$2.2 billion.

Gross farm income in 1958 totaled nearly \$38 billion, the highest on record. This was the result of higher prices for livestock, larger marketings from record crop productions, delayed marketings of 1957 crops, and some increase in payments for acreage placed in the Soil Bank.

However, production expenses in-

creased to a new record high, and the realized net income of American farmers still remained below that of 1946-1953.

The total income of farm people rose nearly 13 percent in 1958. Per capita income rose 10.5 percent. It now stands at \$1,068, nine percent above the previous record of \$983 in 1951.

In dollars of constant purchasing power, 1958 per capita farm income was the highest in 10 years, although not the highest on record.

Packaging Frozen Vegetables

The frozen vegetable industry has changed considerably in the past 14 years; so has the size of the containers used to pack these vegetables.

In the mid-1940's, the retail package of a pound or under took less than half of the total pack of frozen vegetables. It now accounts for about three-fourths of the total. About 75 percent of the broccoli, 70 percent of the spinach, 60 percent or more of the snap beans and lima beans go into these smaller retail packages.

Institutional packages, on the other hand, have increased in size. Formerly, small (under 30 pounds) containers were the 2 to 1 favorites. But in 1956, for the first time, a greater amount of vegetables was packed in larger institutional and bulk containers. Mostly these were used for cut corn, green peas, and lima beans.

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